



February 2020

The mission of NCCAT is twofold: to provide nationwide access to advanced cryoEM technical capabilities, and to assist users in the development of cryoEM skills needed for independent research. NCCAT provides access to state-of-the-art equipment required to solve structures to the highest possible resolution using cryoEM methods. Supported by the **NIH Common Fund** Transformative High Resolution Cryo-Electron Microscopy program (U24 GM-129539).

## Training Montage

The field of structural biology has been very exciting in recent years due to technological advances in cryoEM that have increased the possibilities for structural biologists. At least that is the view of Dr. Eric Montemayor, NCCAT's latest embedded scientist in the TP1 cross-training program.



Growing up, Eric loved learning how things worked, and this fascination led him to a now 15 year career in structural biology mostly focused on protein/RNA complexes. His training began in x-ray crystallography, but now cryoEM allows people like him to see things that would have otherwise been impossible a few years ago.

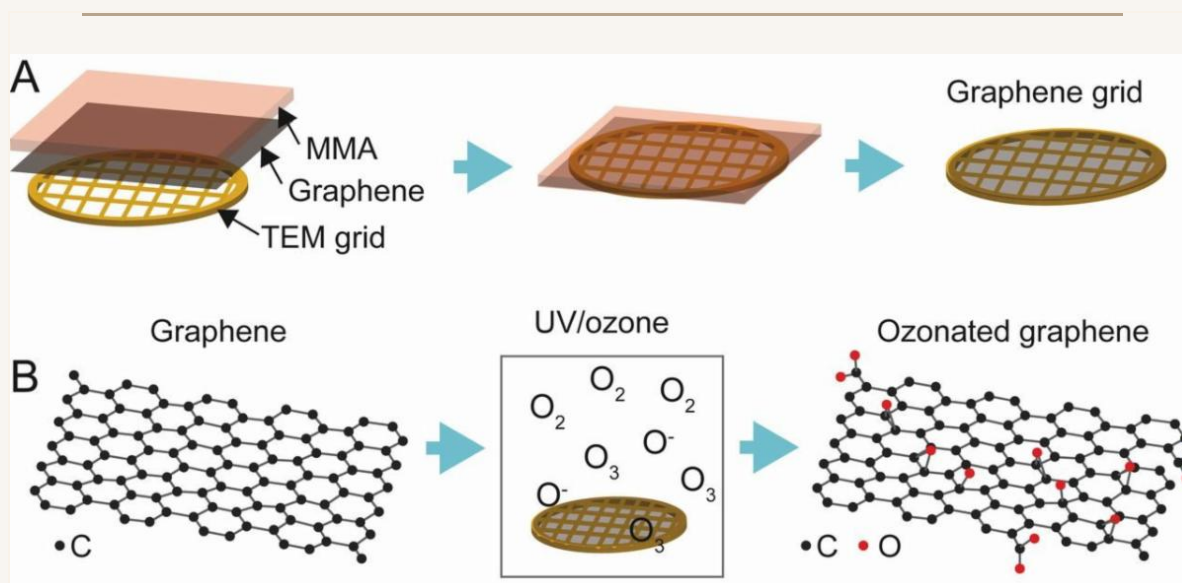
However, learning cryoEM is not exactly a part-time activity that can easily fit into one's existing knowledge of x-ray crystallography or molecular biology, and this is what the embedded training program at NCCAT is designed for. Scientists accepted to the TP1 program are surrounded by experts in the cryoEM field every day during their time at NCCAT. This immersive training experience aims to provide the scientist with the knowledge and skills to become an independent cryoEM user.

There is not usually a one-size-fits-all method for a training program, so NCCAT customized a plan to provide Eric expertise in sample preparation and data collection in a high-throughput environment, and help him develop expertise in computational methods for challenging single particle projects. While he was on site at NCCAT he had continuous contact time with highly experienced personnel and a newly commissioned Krios microscope, and presented his work in progress at group meetings to obtain timely feedback

and ensure the training was as productive as possible. One of the biggest challenges for Eric however was the long stretches of time he was away from his wife and children in Madison. In between on site visits he would go home to Madison and be with them while focusing on data processing to reinforce the computational methods he learned at NCCAT.

Now as a “graduate” of the TP1 program Eric has returned to the University of Wisconsin as a facility manager of their emerging cryoEM Research Center. He will work with other structural biologists transitioning to cryoEM and provide them with the training they need to become independent experts.

## Workshop on Graphene Grids for CryoEM



**March 25, 2020**

**9am - 5pm**

**New York Structural Biology Center**

NCCAT & NRAMM are hosting an [upcoming workshop](#) on accessible and robust methods for preparing high-yield monolayer graphene grids for cryo-EM could significantly alleviate issues with grid preparation. The graphene grid making approach employed and published recently (Han, Fan et al. 2020) may increase particle concentration over grid holes without compromising high resolution structural information.

Authors of (Han, Fan et al., 2020) from Princeton University, in conjunction with the NCCAT and NRAMM, will lead a hands-on workshop aimed at teaching attendees how they make graphene grids for cryo-EM. With this knowledge, researchers will be able to prepare graphene grids in a typical biology lab using commercially available graphene sheets.

*This workshop is offered at NO COST, but limited to 20 attendees.  
Application deadline March 6 @5pm.*

**APPLY NOW**



## New Access Opportunities!

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### Block Allocation Group (BAG) Applications

BAG Applications allow researchers greater flexibility in instrumentation access allocation and scheduling by combining General User Proposal (GUP) access proposals. Applicants can request up to 10 days a year over a two year period. Currently, BAG proposals will support access to instruments for single-particle cryoEM data collection on Titan Krios instruments. [Visit the NCCAT website](#) to learn more including how to apply!

### Rapid Access Proposals (RAP)

RAP Applications offer rapid turn around time from request to award for standard single-particle data collection on samples that may be easily set up with automated data collection. Applicants can either request more time on an accepted GUP proposal or expedited review for new proposals with the target of 1-month turnaround. [Visit the NCCAT website](#) to learn more including how to apply!

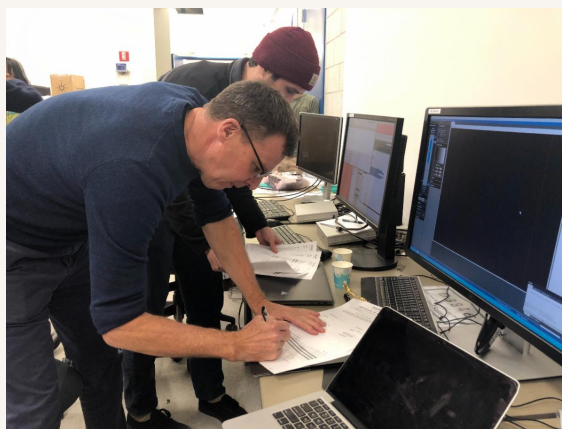
## Krios #4 Sign-Off!

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On January 7, 2020 at 3:45PM we welcomed Krios #4 a.k.a. Elizabeth into the world, 14 feet tall and 8000 pounds.

Elizabeth is the first Krios signed off for NCCAT and the fourth for SEMC.

Our most recent embedded scientist, Eric Montemeyer had the honor of being the first User on Krios #4.



## NCCAT Shortcourses

Missed your chance to sign up this year?

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NCCAT is holding two, week-long workshops this spring. The first course will run from March 2-6 and focus on the theory and practice of single-particle analysis. The second course will run from April 13-17 focus on the theory and practice of tomographic methods.

Although registration for this year's courses have now closed you can email [nccatinfo@nysbc.org](mailto:nccatinfo@nysbc.org) to be placed on the live stream mailing list.

[Visit the website](#) for more info including the agenda.

## **NCCAT Goes to Washington (And San Diego)**

NCCAT attended the ASCB annual meeting in Washington, DC in December and BPS last week in San Diego along with the other CryoEM centers, PNCC and S<sup>2</sup>C<sup>2</sup>.

Catch them in August at [Microscopy & Microanalysis](#) in Milwaukee and be sure to stop by the booth. Look for a man wearing a Chameleon and you could get a free I ♥ NY T-Shirt!!



## **Submit Your Proposal to NCCAT**



### **NCCAT GUP1 PROPOSAL SUBMISSION**

The [GUP1 early access program](#) supports single particle cryoEM data collection on one of our existing Titan Krios instruments



### **NCCAT GUP2 PROPOSAL SUBMISSION**

The [GUP2 cycle](#) supports use of [Chameleon](#) (the commercialized version of [Spotiton](#)) and an exploratory screening microscope



### **NCCAT TP1 PROPOSAL SUBMISSION**

The [TP1 cycle](#) supports embedded scientist training.



### **NCCAT TP2 PROPOSAL SUBMISSION**

The [TP2 cycle](#) supports facility manager training

using a Gatan K2  
direct-electron  
detector.

session.

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NCCAT is supported by the NIH Common Fund Transformative High Resolution Cryo-Electron Microscopy program (U24 GM-129539).